

SECTION 31 2323.33

FLOWABLE FILL

LANL MASTER SPECIFICATION

When editing to suit project, author shall add job-specific requirements and delete only those portions that in no way apply to the activity (e.g., a component that does not apply). To seek a variance from applicable requirements, contact the ESM Civil POC.

When assembling a specification package, include applicable specifications from all Divisions, especially Division 1, General Requirements.

Delete information within "stars" during editing.

Specification developed for ML-3 / ML-4 projects. For ML-1 / ML-2, additional requirements and QA reviews are required.

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Flowable fill (cement stabilized backfill).

1.2 RELATED SECTIONS-

- A. Section 31 2000 - Earth Moving
- B. Section 03 3001 - Reinforced Concrete

1.3 SUBMITTALS

- A. Submit the following in accordance with Section 01 3300, Submittal Procedures.
 - 1. Material certifications documenting compliance with the New Mexico Department of Transportation (NMDOT) Standard Specifications for Highway and Bridge Construction (SSHBC), to include the NMDOT Supplemental Specification to the 2000 Edition. Guidance; NMDOT Standard Specifications for Highway and Bridge Construction (SSHBC) book is at <http://nmshtd.state.nm.us/main.asp?secid=11183>
 - 2. Provide design mixes and test reports.
 - 3. Batch tickets.
 - 4. Field test reports.

1.4 DESCRIPTION

- A. Flowable fill may be used for trenches, pipe structures, fill for abandoned water and sewer lines, and other works where cavities exist and firm support is required.

- B. The use of flowable fill around or adjacent to utility lines or structures shall be reviewed and approved by the appropriate LANL Utilities and Infrastructure system representative.

1.5 QUALITY ASSURANCE

- A. When work or portions of work of this section are completed and require testing, notify the LANL Construction Inspector.
- B. Ensure all required cast-in-place concrete, embedment items, and utility work has been completed prior to placing flowable fill.

1.6 JOB CONDITIONS

- A. Perform concrete washout, trucks and mixers, in a designated and controlled area to prevent the runoff of washout material and the co-mingling of unset concrete with storm water. Properly dispose of all hardened excess concrete.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Provide materials and construction requirements for Flowable Fill conforming to NMDOT SSHBC, Section 516.

2.2 FLOWABLE FILL

- A. Mix and deliver flowable fill in accordance with ASTM C94.
- B. Use accelerating admixtures in cold weather only when approved by LANL Contract Administrator. Use of admixtures will not relax cold weather placement requirements.
- C. Use set retarding admixtures during hot weather only when approved by LANL Contract Administrator.
- D. Do not use calcium chloride as an admixture.
- E. Add air-entraining agent if required to produce a flowable mix.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that all items of cast-in-place concrete, grading, trenching, and all utilities and other embedded items are in place prior to placing flowable fill.
- B. Utilities that are subject to required movement, i.e. steam and condensate lines, shall not be embedded in flowable fill or otherwise have restricted movement.
- C. Flowable fill shall not be used as a substitute for sand bedding or earth backfill for primary utilities unless approved by the LANL Utilities and Infrastructure system representative.

3.2 PREPARATION

- A. Remove all loose material from the uneven tuff and the concrete structures.
- B. Set elevation marks or otherwise determine the proper top elevation for the flowable fill.

3.3 PLACEMENT OF FLOWABLE FILL

- A. Notify LANL Construction Inspector a minimum of 24 hours prior to placement of flowable fill.
- B. Flowable fill may be placed by direct discharge from the truck, by pumping, or by other approved methods.
- C. The flowable fill shall be placed in a uniform manner that will prevent voids or segregation of the bedding and filling material. If required, the flowable fill shall be consolidated with internal vibrators.
- D. Pipes, reinforcement, inserts, or other embedded parts shall be placed, supported, and secured in a manner that shall prevent the flowable fill from displacing, sagging, or from floating embedded items.
- E. Flowable fill shall be brought up uniformly to the fill line shown on the plans. Formed walls or other bulkheads shall be constructed to withstand the exerted hydrostatic pressure and confine the material within a dedicated space.
- F. Placement of flowable fill shall start only when weather conditions are favorable. The temperature shall be at least 35 degrees F and rising. Flowable fill shall not be placed on frozen ground or when it is raining.

3.4 CURING AND PROTECTION

- A. Immediately after placement, protect flowable fill from premature drying, excessively hot or cold temperatures and mechanical injury.
- B. The flowable fill shall not be subjected to load and shall remain undisturbed by construction activities for at least 24 hours after placement.

3.5 FIELD QUALITY CONTROL

- A. Testing of flowable fill is not necessarily required. If testing is required, the Contractor shall provide a LANL approved, certified, independent testing agency to perform field-testing in accordance with NMDOT SSHBC, Section 516.
- B. Provide unobstructed access to work and cooperate with appointed firm.

3.6 DEFECTIVE FLOWABLE FILL

- A. Do not accept or place defective flowable fill that is not in conformance with acceptance criteria. Return the fresh flowable fill to the supplier.
- B. Defective flowable fill is flowable fill having excessive honeycomb, embedded debris, higher than maximum compressive strength, or not conforming to required

lines, details, dimensions, tolerances or specified requirements. Repair or replace defective flowable fill as directed by the LANL Contract Administrator.

- C. Replace flowable fill not in conformance with details, tolerances, and other construction requirements at Contractor's expense.

END OF SECTION

Do not delete the following reference information:

FOR LANL USE ONLY

This project specification is based on LANL Master Specification 31 2323.33, Rev. 1, dated September 14, 2006.